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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/624,212 | 07/22/2003 | Donald D. Duncan | 1863-SPL | 7051 |

26085 7590 10/18/2006

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EXAMINER

STREGE, JOHN B

ART UNIT PAPER NUMBER

2624

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,212

Applicant(s)

DUNCAN ET AL.

Examiner

John B. Strege

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rioux et al. USPN 5,708,498 (hereinafter "Rioux"), in view of Hancock et al. *Active laser radar for high-performance measurements* (hereinafter "Hancock").

Rioux discloses a method of scanning an artifact (col. 1 lines 17-28) comprising: obtaining color image data for the artifact using conventional imagery (col. 1 lines 5-10, col. 4 lines 33-44); and obtaining gross shape data for the artifact using a three-dimensional scanning technique (col. 1 lines 5-10, col. 4 lines 33-44, note that the 3-D profile of the artifact is obtained which is read as the shape data).

Rioux does not explicitly disclose determining areas on the artifact that need to be scanned in a higher resolution (although it should be noted that Rioux is interested in obtaining high resolution shape and color data, col. 1 lines 17-27) and does not disclose obtaining high resolution shape data for the areas on the artifact determined to need higher resolution using an amplitude modulated laser scanning technique.

Hancock discloses a scanner which can run at variable scan rates and provide very high resolution images in seconds (first paragraph of section 4, Applications, on page 1469). One such application discussed is a building model where low resolution

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scans can give room shapes and obstacles in less than one second and high resolution scans can yield highly detailed models in which people, light fixtures, and even door knobs can be imaged and located with ease and no post processing (second paragraph of section 4 on page 1469, note that a determination must be made to determine which areas need a high resolution scan). Hancock further discloses that the scanner uses a laser which is amplitude modulated (at least second paragraph of the abstract).

Hancock and Rioux are analogous art because they are from the same field of endeavor of 3-D high resolution scanning.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine Rioux with the invention of Hancock to use an amplitude modulated laser that allows for high resolution pictures of objects in a small amount of time. The motivation would be to allow for faster processing of the images. Thus it would have been obvious to one of ordinary skill in the art to combine Hancock and Rioux to obtain the invention of claim 1.

Regarding claim 2, both Hancock and Rioux disclose combining the data into a single image file (Hancock in the second paragraph of section 4, Rioux col. 1 lines 17-27).

Regarding claims 3-4, Rioux discloses using photometric stereo scanning, and structured light scanning techniques to achieve the 3-D scanning (col. 2 lines 30-65).

Regarding claim 5, Rioux discloses a system similar to a galvanometer in the paragraph bridging cols. 3-4. Furthermore it is well known to use a galvanometer to

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obtain high resolution scans thus the Examiner declares official notice. The motivation would be to use a piece of equipment that allows for efficient imaging.

Regarding claim 6, it is well known to use acousto-optic Bragg cell system with amplitude modulated laser scanning thus the Examiner declares official notice. The motivation would be to use a piece of equipment that allows for efficient imaging.

Claim 7 has similar limitations to claim 1, thus only limitations not addressed above will be addressed here. Rioux discloses a pattern illumination projector coupled with the processor for illuminating the artifact with light for obtaining gross shape data for the artifact using a three-dimensional scanning technique (col. 2 lines 33-65). Furthermore Rioux discloses lenses for focusing a range scanning beam emitted from the scanning device onto the artifact (paragraph bridging cols. 3-4 and paragraph bridging cols. 4-5).

Claims 8-12 are similarly analyzed to claims 2-6.

Claims 13-18 are similarly analyzed to claims 1-6.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 7,104,455 Planar light illumination and imaging (PLIIM) system employing LED-based planar light illumination arrays (PLIAS) and an area-type image detection array.

USPN 4,627,734 Three dimensional image method and device.

USPN 7,010,176 Imaging system for automatic resolution adjustment.

USPN 5,177,556 Three dimensional color imaging.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Strege whose telephone number is (571) 272-7457. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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